

CLAIMS:

1. A method of synchronising the filling of a queue, present at an interface between a packet network and a synchronous data link for storing packet identifiers identifying packets received from the packet network, to an incoming packet flow, the method comprising:
 - receiving a packet at said interface;
 - identifying the sequence number of said packet;
 - setting a read pointer, pointing to the next packet identifier to be read from the queue, to a value which is a predefined amount less than the identified sequence number.
2. A method according to claim 1, wherein said synchronous data link is a TDM link.
3. A method according to claim 1, wherein said queue forms part of a packet buffer, the buffer comprising a memory for storing packet data, and the queue being arranged to store packet identifiers identifying packets received from the packet network and their respective storage locations within the buffer memory.
4. A method according to claim 3, wherein a queue scope is defined as the range of packet sequence numbers from the read pointer to the read pointer plus the queue size, and arriving packets having sequence numbers within the queue scope are accepted into the queue, whilst packets having sequence numbers outside of the queue scope are rejected as either late or early.
5. A method of managing a buffer queue at an interface between a packet network and a synchronous data link, the method comprising determining the level of synchronisation between a playout from the queue and the filling of the queue, and when this level falls below a certain threshold performing a synchronisation method according to any one of the preceding claims.

6. A gateway for interfacing a packet network to a synchronous data link and having an input for coupling to a packet network for receiving packets therefrom and an output coupled to the synchronous data link for playing out synchronous data thereto, the apparatus comprising:
- 5 a buffer having a memory for storing received packet data and a queue for storing packet identifiers identifying packets received from the packet network and their respective storage locations in the buffer memory; and
- processing means for identifying the sequence number of a received packet and for setting a read pointer, pointing to the next packet identifier to be read from the
- 10 queue, to a value which is a predefined amount less than the identified sequence number.
7. A method of controlling the average length of a queue, present at an interface between a packet network and a synchronous data link, for storing packet identifiers
- 15 identifying packets received from the packet network, the method comprising:
- maintaining a read pointer which points to the next packet identifier to be read from the queue;
- extending the average queue length by responding to receipt of a next packet request from the synchronous data link transmitter by providing an under-run
- 20 instruction and maintaining the read pointer unchanged; and
- reducing the average queue length by responding to receipt of a next packet request from the synchronous data link transmitter by identifying to that transmitter a packet of reduced size, and incrementing the read pointer.
- 25 8. A method according to claim 7, wherein said step of reducing the average queue length comprises modifying a packet length field in a header of packet data stored in a buffer memory and pointed to by said packet identifiers.
9. A method according to claim 7, wherein said synchronous data link is a TDM
- 30 link.
10. A method according to claim 7, wherein said queue forms part of a packet buffer, the buffer comprising a memory for storing packet data, and the queue being

arranged to store packet identifiers identifying packets received from the packet network and their respective storage locations within the buffer memory.

11. A method according to claim 10, wherein a queue scope is defined as the range
5 of packet sequence numbers from the read pointer to the read pointer plus the queue size, and arriving packets having sequence numbers within the queue scope are accepted into the queue, whilst packets having sequence numbers outside of the queue scope are rejected as either late or early.

10 12. A gateway for interfacing a packet network to a synchronous data link and having an input for coupling to a packet network for receiving packets therefrom and an output coupled to the synchronous data link for playing out synchronous data thereto, the apparatus comprising:

15 a buffer having a memory for storing received packet data and a queue for storing packet identifiers identifying packets received from the packet network and their respective storage locations in the buffer memory; and

20 control means for maintaining a read pointer which points to the next packet identifier to be read from the queue and for extending the average queue length by responding to receipt of a next packet request from the synchronous data link transmitter by providing an under-run instruction and maintaining the read pointer unchanged, and reducing the average queue length by responding to receipt of a next packet request from the synchronous data link transmitter by identifying to that transmitter a packet of reduced size, and incrementing the read pointer.

25 13. A gateway according to claim 12, wherein the control means comprises means for monitoring the length of said queue, for determining an optimum average queue length, and for initiating extend and reduce operations in order to maintain the average queue length at said optimum average queue length.